DOCUMENT RESUME

ED 171 586 SE 027 822

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TITLE Wisconsin Mathematics Test, Grades 7 and 8.
INSTITUTION Wisconsin State Dept. of Public Instruction, Madison. Div. of Instructional Services.
PUB DATE [78]
NOTE 67p.; Contains occasional light and broken type

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Achievement Tests; *Criterion Referenced Tests; *Diagnostic Tests; Grade 7; Grade 8; Secondary Education; *Secondary School Mathematics; *Tests
IDENTIFIERS *Wisconsin

ABSTRACT

This mathematics achievement test for grades 7 and 8 is based on objectives identified in "Guidelines to Mathematics, 6-8." The test can be used as a criterion-referenced instrument, a diagnostic instrument, or an achievement instrument. Each test item is cross-referenced to the corresponding student behavioral objective in the above publication. This cross-referencing makes it possible to analyze strengths and weaknesses through item analysis comparison with objectives. Technical information included consists of test reliability and descriptive statistics. (MP)

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Wisconsin Mathematics Test—Grades 7-8

SE 027 822

Wisconsin Department of Public Instruction Barbara Thompson, Ph.D., State Superintendent

WISCONSIN MATHEMATICS TEST

GRADES 7 AND 8

Based On The Objectives In

Guidelines to Mathematics, 6-8

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TABLE OF CONTENTS

Foreword i

Writing Committee. ii

How to Use the Test. 1

Technical Information. 1

Answer Keys. 10

Test (Grade 7) 12

Test (Grade 8) 40

FOREWORD

Contemporary mathematical content objectives, agreed upon by a group of respected Wisconsin mathematics educators, were identified in Guidelines to Mathematics, 6-8 published three years ago by the Department. We are pleased now to publish a mathematics achievement test for grades 7 and 8 that is based on those objectives. School districts that accept for their programs the objectives listed in our guide are encouraged to reproduce and use this test.

This achievement test can be used only to assess the accomplishment of cognitive content objectives. While acquisition of mathematical knowledge and skills is an important outcome of any mathematics program, the affective impact is of equal importance. Appreciation of mathematics, liking to do mathematics, and a desire to explore mathematics are also desirable outcomes of a well-balanced mathematics program.

Barbara Thompson, Ph.D.
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This project was sponsored cooperatively by

Wisconsin Department of Public Instruction
Title V of the Elementary and Secondary Act
Title III of the National Defense Education Act

HOW TO USE THE WISCONSIN MATHEMATICS TEST
GRADES 7 and 8

This test may be duplicated for school use without special permission. The test (WMT-7 and WMT-8) can be used as a criterion-reference instrument, a diagnostic instrument, or an achievement instrument.

Criterion-Referenced Measurement (CRM)

CRM is primarily concerned with measuring the attainment of instructional objectives. One way the WMT can be used in CRM is to use it as both a pre-test and a post-test for a given year of instruction, noting student gains on the objectives listed in Guidelines to Mathematics, 6-8.

Diagnostic Assessment

This test can be used at any time for diagnostic purposes. Each test item is cross-referenced to the corresponding student behavioral objective in Guidelines to Mathematics, 6-8. This cross-referencing makes it possible to analyze student strengths and weaknesses through item analysis comparison with objectives.

Achievement Assessment

WMT can be used to measure student achievement if the objectives upon which the test is based coincide with the objectives of the school mathematics program. If program objectives form a subset of the test objectives, then the test items associated with those objectives can be used to measure student achievement.

TECHNICAL INFORMATION

A sample of 760 Wisconsin 7th graders and 760 Wisconsin 8th graders were tested in May 1972 to obtain the data included in this section. Distribution of students in the sample, according to district enrollment of 8th graders was

% of Sample	8th Grade Enrollment
15%	under 100
20%	100-300
25%	300-1000
16%	1000-5000
24%	over 5000

Reliability

A reliability measure of .90 was obtained for both tests using the Kuder-Richardson Formula #20.

Percent of Correct Responses

The tables below show the percent of pupils that responded correctly on test items associated with specified objectives. The objectives are identified using the following three-numeral code:

The first numeral in the code refers to the grade level (7 or 8).

The second numeral refers to content strands in Guidelines to Mathematics, 6-8, i.e., (1) Sets and Numbers, (2) Numeration Systems, (3) Order, (4) Number Systems, (5) Ratio and Proportion, (6) Computation, (7) Size and Shape, (8) Sets of Points, (9) Symmetry, (10) Congruence, (11) Similarity, (12) Coordinate Systems and Graphs, (13) Constructions, (14) Measurement, (15) Mathematical Sentences, (16) Ordered Pairs, Relations and Functions, and (17) Statistics and Probability.

The third numeral represents the number of the objective as listed in the guidelines.

For example, objective 8-6-3 refers to grade 8, strand 6 (computation), and objective number 3 (Students should be able to express repeating decimals in fractional form.).

SEVENTH GRADE TEST TABLES

TABLE 1

Objective	Test Item Number	% of Sampled Students Responding Correctly
7-1-1	13	43%
7-1-2	1	84%
7-1-3	14	35%
7-1-4	34	12%
7-1-5	20	49%
7-1-6	24	49%
7-1-7	10	46%
7-1-8	38	28%
7-1-9	28	35%
7-1-10	32	43%
7-1-11	39	13%
7-2-1	21	40%
7-2-2	15	35%
7-2-3	25	27%
7-2-4	29	45%
7-2-5	33	45%
7-3-1	11	41%
7-3-2	2	52%
7-3-3	16	35%
7-4-1	3	34%
	17	36%
	22	58%
	26	40%
7-4-2	30	38%
7-4-3	35	24%
7-5-1	18	39%
7-6-1	4	43%
7-6-2	5	70%
7-6-3	6	67%
	19	47%
7-6-4	7	64%
7-6-5	23	33%
7-6-6	27	36%
7-6-7	31	21%
7-6-8	8	81%
7-6-9	36	15%
7-7-1	52	49%
7-7-2	55	16%
	67	48%
7-7-3	40	69%
7-7-4	74	23%
7-8-1	57	54%
7-9-1	68	27%
7-10-1	53	62%

TABLE 1 (cont.)

Objective	Test Item Number	% of Sampled Students Responding Correctly
7-10-2	41	55%
7-10-3	69	22%
7-10-4	46	62%
7-10-5	48	47%
7-11-1	70	58%
7-11-2	56	32%
7-11-3	76	27%
7-13-1	71	25%
7-13-2	43	58%
7-13-3	44	49%
7-13-4	49	57%
7-14-1	58	63%
7-14-2	42	65%
7-14-3	72	28%
7-14-4	77	34%
7-14-5	80	19%
7-14-6	60	45%
7-14-7	82	26%
7-14-8	84	31%
7-14-9	85	38%
7-14-10	54	66%
7-15-1	9	58%
7-15-2	12	42%
7-15-3	37	28%
7-16-1	65	45%
7-16-2	73	24%
7-16-3	78	31%
	81	16%
7-16-4	83	21%
7-16-5	59	53%
7-16-6	66	29%
7-17-1	45	68%
7-17-2	47	57%
7-17-3	50	62%
7-17-4	75	42%
7-17-5	62	58%
7-17-6	51	53%
7-17-7	79	11%
7-17-8	63	34%
7-17-9	61	33%
7-17-10	64	36%

TABLE 2

Test Item Number	% of Sampled Students Responding Correctly	Objective
1	84%	7-1-2
2	52%	7-3-2
3	34%	7-4-1
4	43%	7-6-1
5	70%	7-6-2
6	67%	7-6-3
7	64%	7-6-4
8	81%	7-6-8
9	58%	7-15-1
10	46%	7-1-7
11	41%	7-3-1
12	42%	7-15-2
13	43%	7-1-1
14	35%	7-1-3
15	35%	7-2-2
16	35%	7-3-3
17	36%	7-4-1
18	39%	7-5-1
19	47%	7-6-3
20	49%	7-1-5
21	40%	7-2-1
22	58%	7-4-1
23	33%	7-6-5
24	49%	7-1-6
25	27%	7-2-3
26	40%	7-4-1
27	36%	7-6-6
28	35%	7-1-9
29	45%	7-2-4
30	38%	7-4-2
31	21%	7-6-7
32	43%	7-1-10
33	45%	7-2-5
34	12%	7-1-4
35	24%	7-4-3
36	15%	7-6-9
37	28%	7-15-3
38	28%	7-1-8
39	13%	7-1-11
40	69%	7-7-3
41	55%	7-10-2
42	65%	7-14-2
43	58%	7-13-2
44	49%	7-13-3

TABLE 2 (cont.)

Test Item Number	% of Sampled Students Responding Correctly	Objective
45	68%	7-17-1
46	62%	7-10-4
47	57%	7-17-2
48	47%	7-10-5
49	57%	7-13-4
50	62%	7-17-3
51	53%	7-17-6
52	49%	7-7-1
53	62%	7-10-1
54	66%	7-14-10
55	16%	7-7-2
56	32%	7-11-2
57	54%	7-8-1
58	63%	7-14-1
59	53%	7-16-5
60	45%	7-14-6
61	33%	7-17-9
62	58%	7-17-5
63	34%	7-17-8
64	36%	7-17-10
65	45%	7-16-1
66	29%	7-16-6
67	48%	7-7-2
68	27%	7-9-1
69	22%	7-10-3
70	58%	7-11-1
71	25%	7-13-1
72	28%	7-14-3
73	24%	7-16-2
74	23%	7-7-4
75	42%	7-17-4
76	27%	7-11-3
77	34%	7-14-4
78	31%	7-16-3
79	11%	7-17-7
80	19%	7-14-5
81	16%	7-16-3
82	26%	7-14-7
83	21%	7-16-4
84	31%	7-14-8
85	38%	7-14-9

EIGHTH GRADE TEST TABLES

TABLE 1

Objective	Test Item Number	% of Sampled Students Responding Correctly
8-1-1	20	34%
8-1-2	16	44%
8-1-3	29	9%
8-2-1	30	13%
	32	14%
8-2-2	8	43%
8-2-3	9	26%
8-2-4	22	38%
8-3-1	6	47%
8-4-1	2	75%
	4	65%
	12	41%
8-4-2	17	54%
8-4-3	14	45%
8-5-1	40	56%
8-6-1	3	34%
	23	28%
	26	39%
8-6-2	19	37%
8-6-3	33	13%
8-6-4	11	62%
8-6-5	13	37%
8-6-6	31	3%
8-7-1	34	75%
8-7-2	37	56%
8-7-3	63	9%
8-8-1	58	16%
	59	26%
8-8-2	51	29%
8-8-3	43	37%
8-9-1	45	41%
8-10-1	56	30%
8-10-2	42	41%
8-10-3	57	29%
8-11-1	35	71%
8-11-2	47	30%
8-11-3	44	43%
8-11-4	36	73%
8-11-5	53	26%
8-13-1	49	44%
8-13-2	48	36%
8-13-3	52	30%
8-14-1	41	43%
8-14-2	61	13%

TABLE 1 (cont.)

Objective	Test Item Number	% of Sampled Students Responding Correctly
8-14-3	50	32%
8-14-4	62	13%
8-14-5	38	48%
8-14-6	60	22%
8-14-7	46	33%
8-14-8	54	26%
8-14-9	39	64%
8-15-1	15	29%
8-15-2	55	29%
8-15-3	5	38%
8-15-4	7	34%
8-16-1	24	29%
8-16-2	28	32%
8-16-3	27	16%
8-17-1	21	34%
8-17-2	25	20%
8-17-3	10	57%
8-17-4	18	43%
8-17-5	1	86%

TABLE 2

Test Item Number	% of Sampled Students Responding Correctly	Objective
1	86%	8-17-5
2	75%	8-4-1
3	34%	8-6-1
4	65%	8-4-1
5	38%	8-15-3
6	47%	8-3-1
7	34%	8-15-4
8	43%	8-2-2
9	26%	8-2-3
10	57%	8-17-3
11	62%	8-6-4
12	41%	8-4-1
13	37%	8-6-5
14	45%	8-4-3
15	29%	8-15-1
16	44%	8-1-2

TABLE 2 (cont.)

Test Item Number	% of Sampled Students Responding Correctly	Objective
17	54%	8-4-2
18	43%	8-17-4
19	37%	8-6-2
20	34%	8-1-1
21	34%	8-17-1
22	38%	8-2-4
23	28%	8-6-1
24	29%	8-16-1
25	20%	8-17-2
26	39%	8-6-1
27	16%	8-16-3
28	32%	8-16-2
29	9%	8-1-3
30	13%	8-2-1
31	3%	8-6-6
32	14%	8-2-1
33	13%	8-6-3
34	75%	8-7-1
35	71%	8-11-1
36	73%	8-11-4
37	56%	8-7-2
38	48%	8-14-5
39	64%	8-14-9
40	56%	8-5-1
41	43%	8-14-1
42	41%	8-10-2
43	37%	8-8-3
44	43%	8-11-3
45	41%	8-9-1
46	33%	8-14-7
47	30%	8-11-2
48	36%	8-13-2
49	44%	8-13-1
50	32%	8-14-3
51	29%	8-8-2
52	30%	8-13-3
53	26%	8-11-5
54	26%	8-14-8
55	29%	8-15-2
56	30%	8-10-1
57	29%	8-10-3
58	16%	8-8-1
59	26%	8-8-1
60	22%	8-14-6
61	13%	8-14-2
62	13%	8-14-4
63	9%	8-7-3

ANSWER KEY
7th GRADE TEST

1. D	23. A	44. B	65. C
2. C	24. D	45. C	66. B
3. C	25. C	46. D	67. C
4. C	26. A	47. B	68. C
5. D	27. D	48. B	69. C
6. D	28. C	49. D	70. C
7. B	29. C	50. D	71. D
8. C	30. C	51. B	72. C
9. B	31. A	52. C	73. A
10. D	32. A	53. D	74. B
11. D	33. C	54. B	75. A
12. B	34. C	55. B	76. B
13. C	35. B	56. B	77. B
14. D	36. C	57. A	78. B
15. B	37. A	58. B	79. A
16. D	38. A	59. D	80. D
17. B	39. C	60. D	81. D
18. C	40. C	61. D	82. D
19. B	41. B	62. D	83. C
20. B	42. D	63. D	84. A
21. C	43. B	64. B	85. A
22. A			

ANSWER KEY
8th GRADE TEST

1. C	22. D	43. C
2. C	23. B	44. A
3. D	24. B	45. C
4. D	25. C	46. A
5. D	26. B	47. A
6. C	27. A	48. D
7. C	28. D	49. C
8. B	29. D	50. C
9. C	30. C	51. D
10. D	31. B	52. A
11. D	32. A	53. C
12. C	33. A	54. D
13. B	34. B	55. D
14. B	35. B	56. B
15. B	36. C	57. C
16. D	37. B	58. D
17. A	38. C	59. C
18. B	39. D	60. C
19. B	40. A	61. A
20. B	41. C	62. A
21. B	42. D	63. B

SEVENTH GRADE TEST

DO NOT OPEN THE TEST BOOKLET UNTIL YOUR TEACHER TELLS YOU TO

Fill in your name and other information requested at the top of the answer sheet.

This is a mathematics test. Read each question or problem carefully. Look at the lettered responses. When you have decided which is the correct answer, blacken in the space between the lines on the answer sheet under the letter of that choice. If you change your mind, erase your first answer completely. Look at the example below.

1. 12 - 5 =

   A. 12
   B. 5
   C. 7
   D. 0

	A.	B.	C.	D.	E.
1.	—	—	■	—	—

Since 7 is the correct answer, the space under the C in the answer space is blackened.

When your teacher tells you to, open your booklet and begin.

FOR THE TEACHER

Instructions for using machine scorable answer sheets:

1. Read the above information and sample item aloud to the class.
2. Use a soft lead pencil (number 2 or less).
3. Students may use scratch paper. They should not write in the test booklet or make random marks on the answer sheet.
4. Students should answer every item.
5. There is one and only one correct answer for each item.
6. Use the same answer sheet for both parts of the test.
7. There is no time limit on this test.

SEVENTH GRADE TEST PART I

7-1-2 1. Which one of the following numbers is a member of the set { 0, 3, 6, 9, 12, 15, ... } ?

A. 17

B. 19

C. 22

D. 24

7-3-2 2. Which is a true statement about the numbers $\frac{3}{4}$ and $\frac{9}{16}$?

A. $\frac{3}{4} = \frac{9}{16}$

B. $\frac{3}{4} < \frac{9}{16}$

C. $\frac{3}{4} > \frac{9}{16}$

D. none of the above

7-4-1 3. Which property is illustrated by the sentence $\frac{3}{8} \times \frac{4}{4} = \frac{3}{8}$?

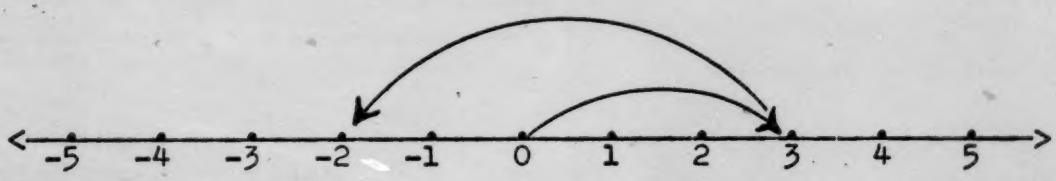
A. commutative property of multiplication

B. associative property of multiplication

C. identity property of multiplication

D. inverse property of multiplication

7-6-1 4.



Which is illustrated on the number line ?

A. 3 + (-2)

B. (-2) - 3

C. 3 - 5

D. -5

7-6-2 5. Another name for $\frac{7}{8}$ is

A. 0.78

B. 0.785

C. $1.142857\overline{142857}$

D. none of the above

7-6-3 6. (5.87 + 25.003) - (0.95) is equal to

A. 25.495

B. 254.95

C. 30.923

D. 29.923

7-6-4 7. The <u>average</u> of 0.24, 3.356, and 33.4 is

A. 1.2332

B. 12.332

C. 18.498

D. 1.8498

7-6-8 8. 96 is divisible by

A. 5 and 6

B. 8 and 9

C. 2, 3 and 4

D. 4, 5 and 6

7-15-1 9. Which one of the following sentences is <u>false</u> ?

A. $63 \times 0 \times 25 < 21 \times 22 \times 2$

B. $35 \times 24 < 30 \times 20$

C. $75 \div 15 = 5$

D. $13 - 7 \neq 5$

7-1-7 10. The union of

$T = \{ \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6} \}$ and $V = \{ \frac{2}{3}, \frac{4}{5}, \frac{6}{7}, \frac{8}{9} \}$ is

A. { } (empty set)

B. $\{ \frac{2}{3}, \frac{4}{5} \}$

C. $\{ \frac{4}{9}, \frac{12}{20}, \frac{24}{35}, \frac{40}{54} \}$

D. $\{ \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}, \frac{8}{9} \}$

7-3-1 11. Given any two rational numbers $\frac{a}{b}$ and $\frac{c}{d}$ which statement is true?

A. $\frac{a}{b} > \frac{c}{d}$

B. $\frac{a}{b} < \frac{c}{d}$

C. $\frac{a}{b} = \frac{c}{d}$

D. one and only one of the above is true

7-15-2 12. The solution for $5n + 4 = 29$ is

A. between 0 and 4

B. between 3 and 10

C. between 9 and 15

D. greater than 15

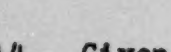
7-1-1 13. Given the 26 letters of the alphabet, identify the set of all letters in the word "mathematics".

A. { m, a, t, h, e, m, a, t, c }

B. { a, e, h, i, m, m, s, t, t }

C. { a, c, e, h, i, m, s, t }

D. { m, a, t, h }

7-1-3 14. Given S = {}, T = {  }, and V = { } (the empty set). Which statement is true?

A. S and T are subsets of V

B. T and V are subsets of S

C. V is not a subset of T

D. S and V are subsets of T

7-2-2 15. $(7 \times 8^3) + (1 \times 8^2) + (0 \times 8) + (5 \times 1)$ is another name for

A. 7105_{ten}

B. 7105_{eight}

C. 5017_{ten}

D. 5017_{eight}

7-3-3 16. Which one of the following is a true statement about the rational numbers $\frac{6}{12}$, $\frac{5}{8}$, and $\frac{4}{9}$?

A. $\frac{4}{9} < \frac{5}{8} < \frac{6}{12}$

B. $\frac{5}{8} < \frac{4}{9} < \frac{6}{12}$

C. $\frac{6}{12} < \frac{5}{8} < \frac{4}{9}$

D. $\frac{4}{9} < \frac{6}{12} < \frac{5}{8}$

7-4-1 17. The sum of two positive rational numbers must always be

A. a whole number

B. a positive rational number

C. a positive integer

D. all of these

7-5-1 18.

2 pencils for 3 cents	2 apples to 3 apples
P	Q

$\frac{2}{3}$ can be used to express

A. only P

B. only Q

C. P and Q

D. neither P nor Q

7-6-3 19. $(1.34 \times 0.6) \div .03$ is equal to

A. 268

B. 26.8

C. 2.68

D. 0.268

7-1-5 20. $S = \{1, 2, 3, 4\}$ $T = \{a, b, c, d\}$ $V = \{2, 3, 4, 1\}$

Which statement is true?

A. $S = T$

B. $S = V$

C. neither $S = T$ nor $S = V$

D. both $S = T$ and $S = V$

7-2-1 21. $\left(\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}\right)$ is another name for

A. $\frac{4}{8}$

B. $\left(4 \times \frac{1}{2}\right)$

C. $\left(\frac{1}{2}\right)^4$

D. $\frac{4}{16}$

7-4-1 22. What replacement for n will make the sentence $\frac{5}{8} + n = \frac{5}{8}$ true ?

A. $\frac{0}{8}$

B. $\frac{1}{1}$

C. $\frac{1}{0}$

D. none of the above

7-6-5 23. $\left(\frac{1}{3}\right)^3$ is equal to

A. $\frac{1}{27}$

B. $\frac{1}{9}$

C. $\frac{3}{9}$

D. $\frac{3}{3}$

7-1-6 24. The intersection of {a, b, e, 7, 15} and {r, 13, t} is

A. {a, b, e, 7, 15, r, 13, t}

B. {a, b, e, r, t}

C. {7, 13, 15}

D. { } (the empty set)

7-2-3 25. Using scientific notation, 1730 is written as

A. 1.73×10

B. 1.73×10^2

C. 1.73×10^3

D. 1.73×10^4

7-4-1 26. Which property is illustrated by the sentence $\left(\frac{2}{3} + \frac{4}{7}\right) + \frac{5}{9} = \frac{5}{9} + \left(\frac{2}{3} + \frac{4}{7}\right)$?

A. commutative property of addition

B. associative property of addition

C. identity property of addition

D. distributive property of multiplication over addition

7-6-6 27. Which of the following can be used to answer the question, 3 is what per cent of 36 ?

A. $\frac{36}{100} = \frac{x}{3}$

B. $\frac{3}{100} = \frac{x}{36}$

C. $\frac{100}{x} = \frac{3}{36}$

D. $\frac{x}{100} = \frac{3}{36}$

7-1-9 28. The prime factor form of 300 is

A. $2 \times 3 \times 5$

B. $2^2 \times 3 \times 25$

C. $2^2 \times 3 \times 5^2$

D. $4 \times 3 \times 25$

7-2-4 29. Which expression <u>does not</u> represent a rational number ?

A. $\frac{3}{5}$

B. $\frac{0}{5}$

C. $\frac{5}{0}$

D. $\frac{5}{1}$

7-4-2 30. Which property of the system of integers is illustrated by $5 + (-5) = 0$?

A. identity property of addition

B. associative property of addition

C. inverse property of addition

D. none of the above

7-6-7 31. Which of the following is between $\frac{3}{7}$ and $\frac{5}{9}$?

A. $\frac{31}{63}$

B. $\frac{15}{63}$

C. $\frac{4}{7}$

D. $\frac{3}{8}$

7-1-10 32.

Q	R	S	T
$3 \div 4$	the shaded circles in the set	the shaded portion of the square	a ratio of 3 things to 4 things

$\frac{3}{4}$ can be used to represent

A. Q, R, S, and T

B. Q and S only

C. R and S only

D. Q and T only

7-2-5 33. $\frac{2}{5}$ is another name for

A. 0.04

B. 0.25

C. 0.4

D. 2.5

7-1-4 34. Which set is <u>equivalent</u> to {0, 2, 4, 6, 8} ?

A. {2, 4, 6, 8}

B. {1, 3, 5, 7}

C. {3, 4, 5, 6, 7}

D. {0, 2, 4, 6, 8, 10}

7-4-3 35. $\frac{3}{4} \times \left(\frac{2}{3} + \frac{5}{6}\right)$ is equal to

A. $\left(\frac{3}{4} + \frac{2}{3}\right) \times \left(\frac{3}{4} + \frac{5}{6}\right)$

B. $\left(\frac{3}{4} \times \frac{2}{3}\right) + \left(\frac{3}{4} \times \frac{5}{6}\right)$

C. $\left(\frac{3}{4} \times \frac{2}{3}\right) + \frac{5}{6}$

D. $\left(\frac{3}{4} + \frac{2}{3}\right) \times \frac{5}{6}$

7-6-9 36. $\frac{2 \times 2 \times 3 \times 5 \times 5}{2 \times 3 \times 3 \times 5 \times 7}$ in <u>simplest form</u> is

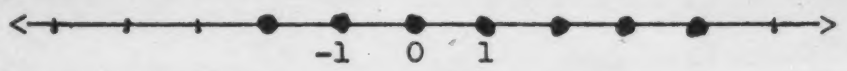
A. $\frac{2^2 \times 3 \times 5^2}{2 \times 3^2 \times 5 \times 7}$

B. $\frac{2 \times 3 \times 5}{2 \times 3 \times 5 \times 7}$

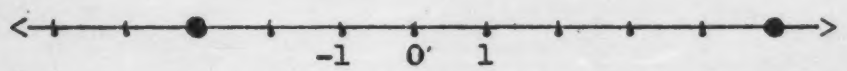
C. $\frac{2 \times 5}{3 \times 7}$

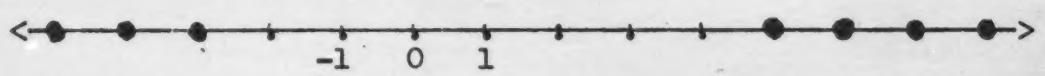
D. $\frac{0}{7}$

7-15-3 37. Which of the following represents "x > -3 and x < 5" where x must be an integer?

A. 

B.

C. 

D. 

7-1-8 38. S = {2, 4, 6} is a subset of T = {2, 3, 4, 5, 6, 7, 8, 9, 10}. What subset of T is the complement of S ?

A. {3, 5, 7, 8, 9, 10}

B. {3, 5, 7, 9}

C. {6, 4, 2}

D. {8, 10}

7-1-11 39. {0.333..., -17, 7, $\frac{3}{5}$, 0} represent a set of

A. odd numbers

B. integers

C. rational numbers

D. none of the above

SEVENTH GRADE TEST PART II

7-7-3 40. The prism shown is classified as

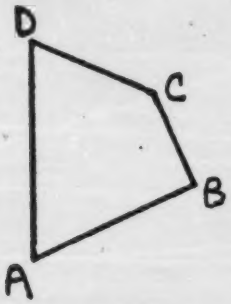
A. a pentagonal prism

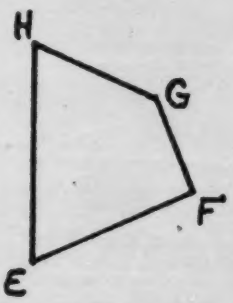
B. a quadrilateral prism

C. a triangular prism

D. a rectangular prism

7-10-2 41.





Quadrilateral ABCD is congruent to ($\cong$) quadrilateral EFGH with $\overline{AB}$ corresponding to $\overline{EF}$. Which of the following is true?

A. $\overline{AB}$ and $\overline{EF}$ have the same endpoints

B. $\overline{AB}$ and $\overline{EF}$ are congruent

C. $\overline{AB}$ and $\overline{EF}$ have different lengths

D. none of the above

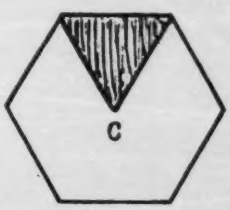
7-14-2 42. If the area of the shaded portion is 3 square inches, what is the area of the entire regular polygonal region?

A. 9 square inches

B. 15 square inches

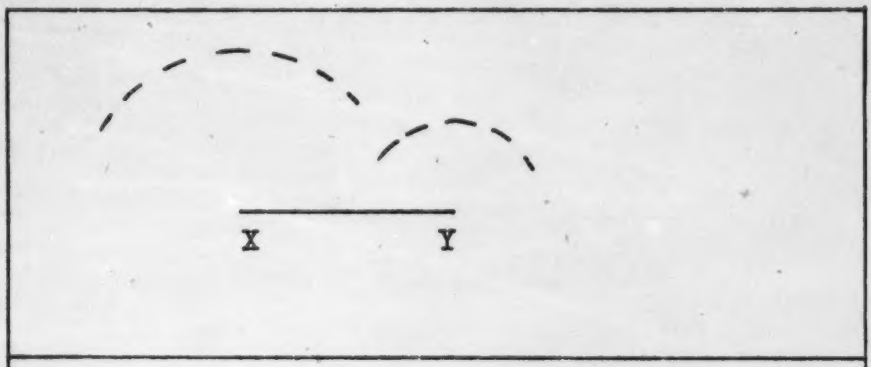
C. 21 square inches

D. none of the above

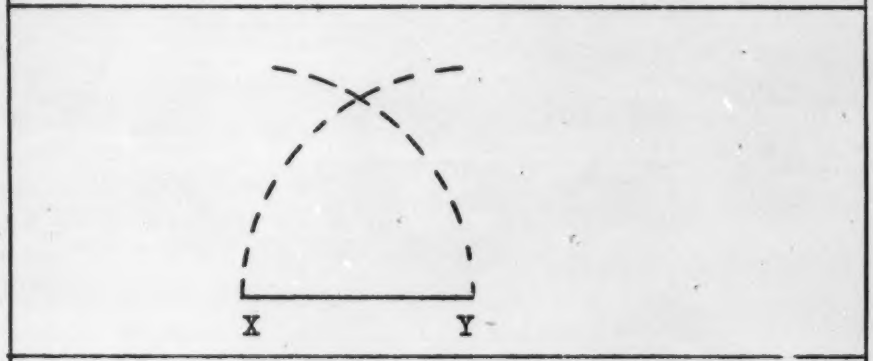


7-13-2 43. You are given $\overline{XY}$ and are asked to construct an equilateral triangle with sides congruent to $\overline{XY}$. Which of the following represents the best approach for this construction?

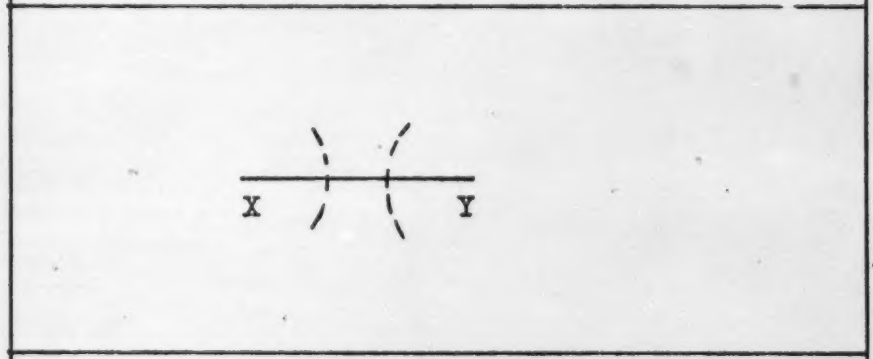
A.



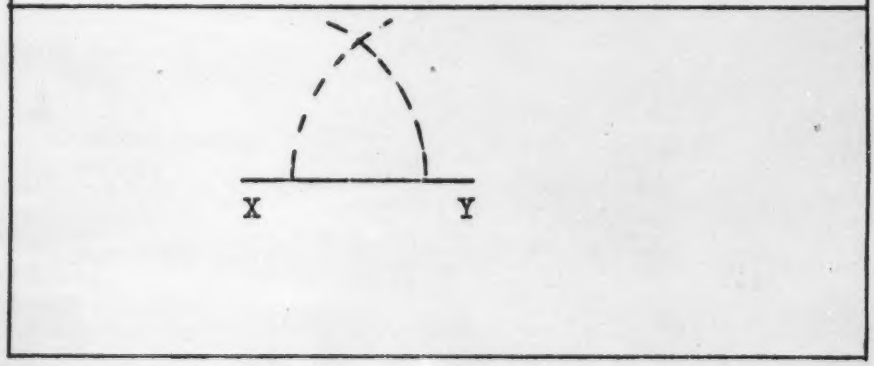
B.



C.

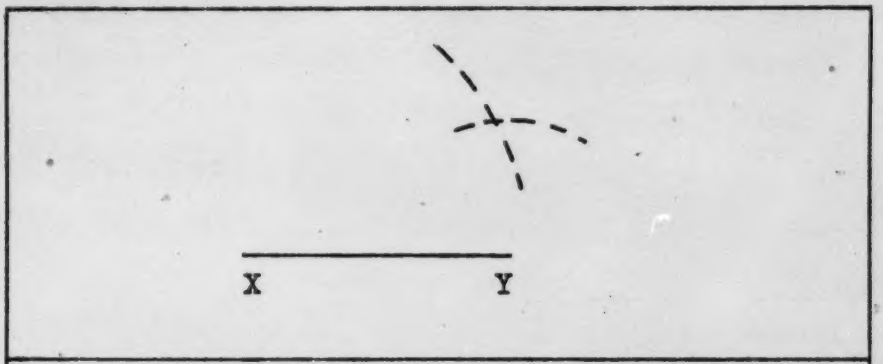


D.

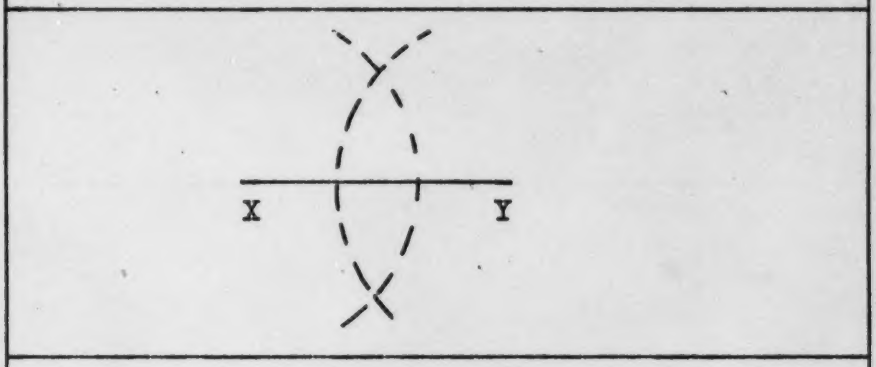


7-13-3 44. You are given $\overline{XY}$ and are asked to construct the perpendicular bisector of $\overline{XY}$. Which of the following represents the best approach for this construction?

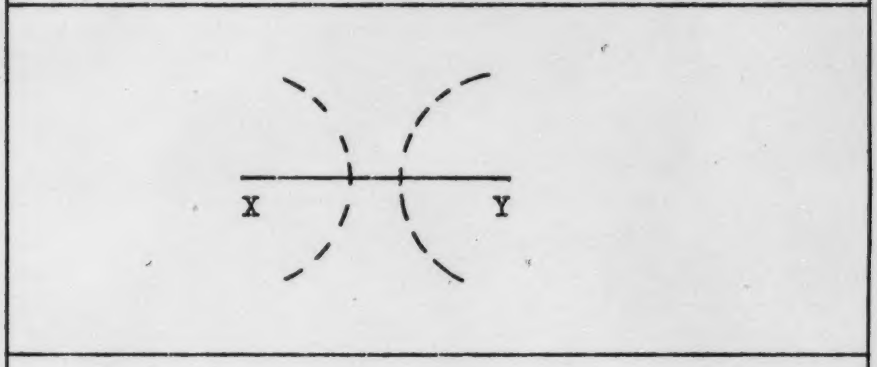
A.



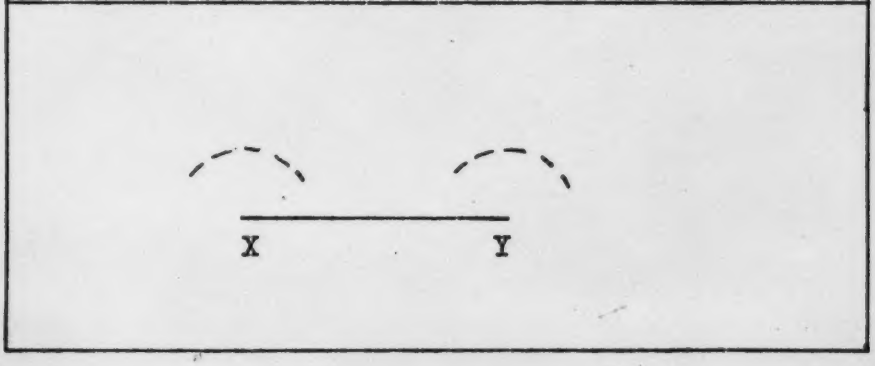
B.



C.



D.



7-17-1 45. The weights of the 15 basketball players on the Junior High Allstar Team are 130, 136, 165, 118, 90, 136, 125, 97, 140, 109, 130, 136, 125, 123, 140. Which interval contains the greatest number of weights?

A. 70 - 99

B. 100 - 129

C. 130 - 159

D. 160 - 189

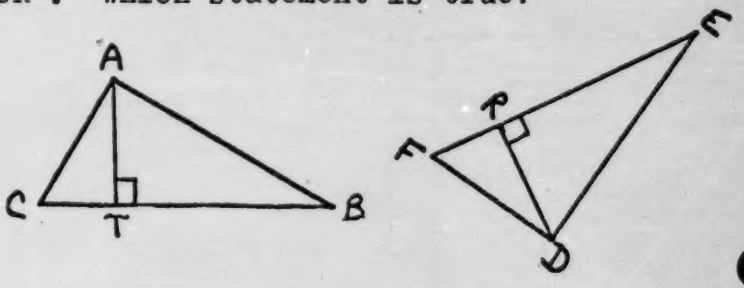
7-10-4 46. Triangle ABC is congruent to (≅) triangle DEF with altitudes $\overline{AT}$ and $\overline{DR}$. Which statement is true?

A. $\overline{CA} \cong \overline{DR}$

B. $\overline{AB} \cong \overline{RE}$

C. $\overline{FD} \cong \overline{AT}$

D. $\overline{AT} \cong \overline{RD}$



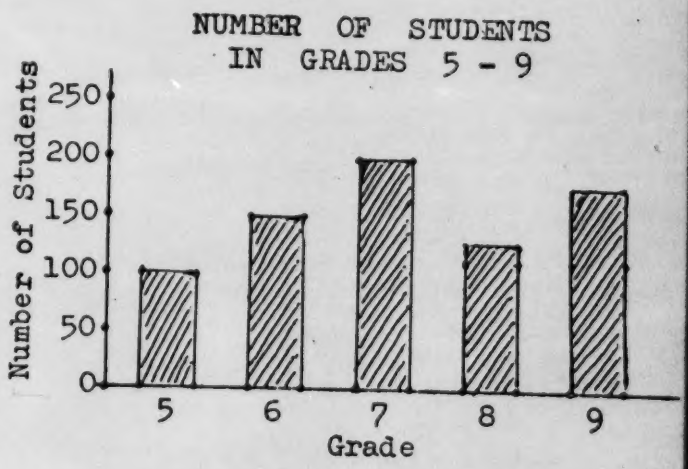
7-17-2 47. The total number of students in grades 6 and 8 is the same as the total number of students in grades

A. 5 and 6

B. 5 and 9

C. 7 and 8

D. 8 and 9



7-10-5 48. If corresponding sides and corresponding angles of two triangles are congruent, then

A. the triangles are equilateral

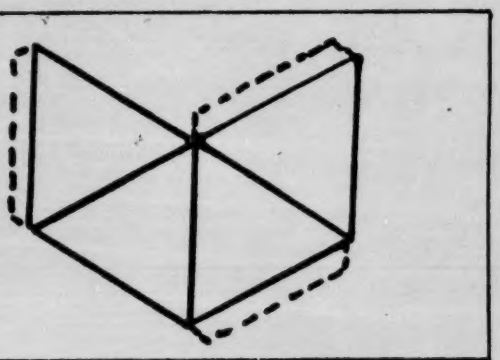
B. the triangles are congruent

C. the triangles have the same vertices

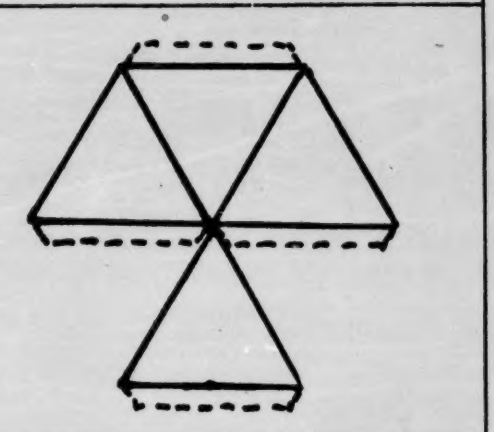
D. none of the above

7-13-4 49. Which one of the following cut-outs could be used to build a model of a triangular pyramid?

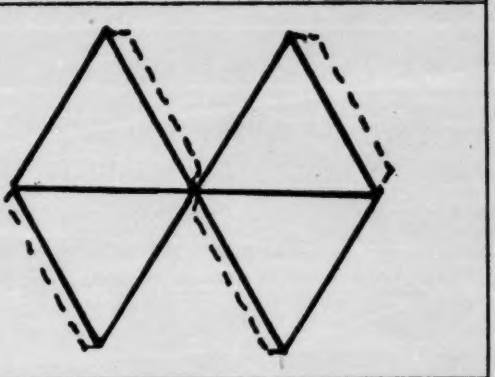
A.



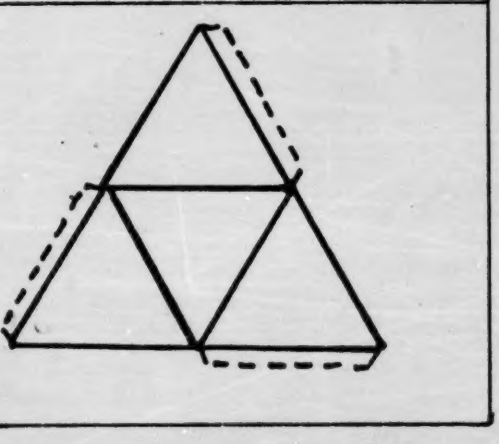
B.



C.



D.



7-17-3 50. Which sentence describes a <u>certain</u> event?

A. The high school basketball team will win its next game.

B. If you "flip" a coin once it will come up "heads".

C. One out of every five people wear eyeglasses.

D. Leap year comes once every four years.

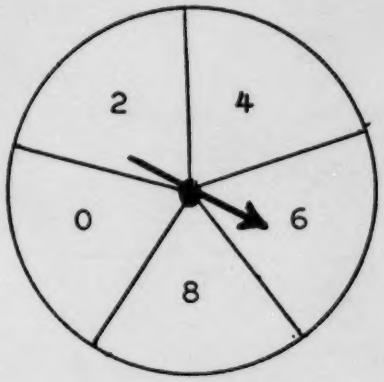
7-17-6 51. The probability of the arrow of the spinner stopping on 2 is

A. $\frac{1}{4}$

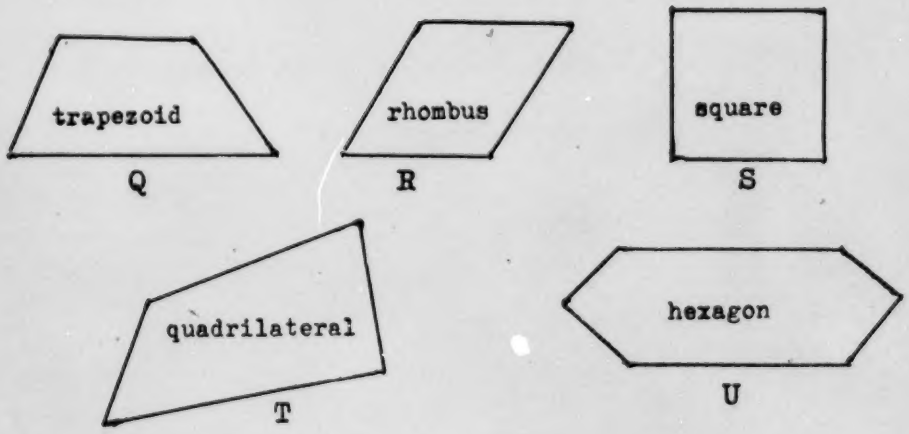
B. $\frac{1}{5}$

C. $\frac{2}{5}$

D. $\frac{2}{8}$



7-7-1 52. Which figures are examples of parallelograms?



A. Q, R, S and U

B. Q, R, S and T

C. R and S

D. Q and T

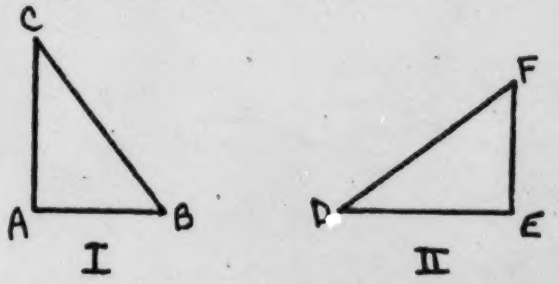
7-10-1 53. If triangle I is congruent to (≅) triangle II, which of the following identify corresponding parts?

A. ∠A and ∠D

B. ∠C and ∠F

C. $\overline{AB}$ and $\overline{DE}$

D. $\overline{AC}$ and $\overline{DE}$



7-14-10 54. Which is the best estimate of the length of segment AB ?

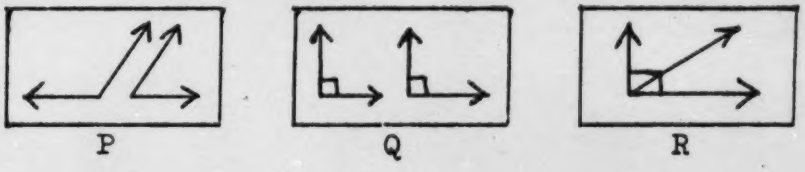
A. 3 inches

B. 5 inches

C. 7 inches

D. 9 inches

7-7-2 55. Which of the following illustrate supplementary angles?

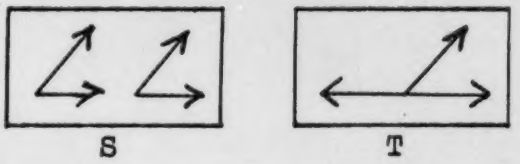


A. P, Q and S

B. P, Q and T

C. R and T

D. R and S



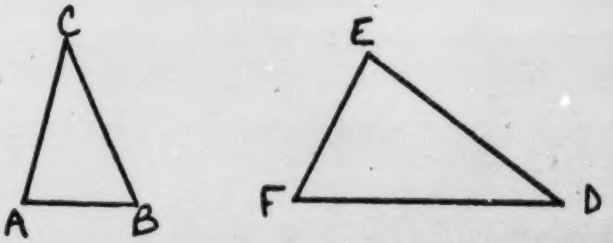
7-11-2 56. If triangle ABC is <u>similar</u> to triangle DEF and ∠C and ∠D are corresponding parts, which statement is true?

A. $m\angle D > m\angle C$

B. ∠D ≅ ∠C

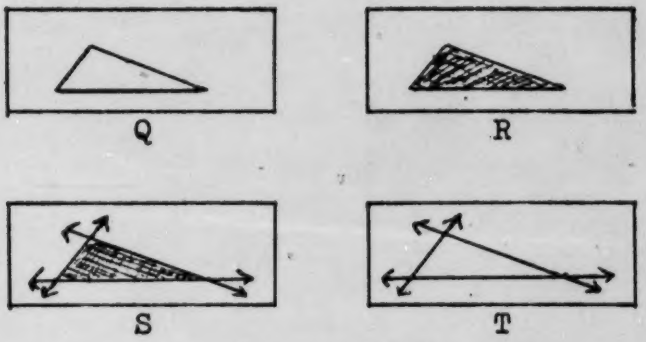
C. ∠D = ∠C

D. none of the above



7-8-1 57. Which figure <u>best</u> illustrates a triangle?

A. Q
B. R
C. S
D. T

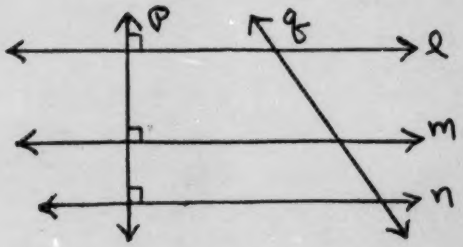


7-14-1 58. What is the length of the pencil to the nearest sixteenth of an inch?

A. $3\frac{5}{16}$ in.
B. $3\frac{4}{16}$ in.
C. $3\frac{2}{16}$ in.
D. $3\frac{1}{4}$ in.

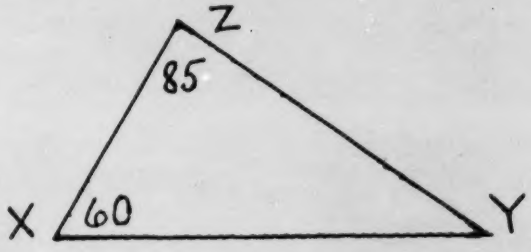
7-16-5 59. Use the diagram to determine which statement is <u>false</u>.

A. ℓ is parallel to m
B. ℓ is parallel to n
C. p is perpendicular to m
D. p is perpendicular to q



7-14-6 60. What is the measure of $\angle Y$ in triangle XYZ ?

A. 215
B. 145
C. 45
D. 35



7-17-9 61. The probability of obtaining a 3 when a fair die is tossed is $\frac{1}{6}$. This statement means that

A. if the die is tossed 6 times, one toss will produce a 3.

B. if the die is tossed 5 times without producing a 3, it is almost certain that the 6th toss will produce a 3.

C. if the die is tossed 60 times at least 10 of the tosses will produce 3's.

D. if the die is tossed many times, on the average one-sixth of the tosses will produce 3's.

7-17-5 62. If you "flip" a penny and a dime, which of the following lists all the possible outcomes? (H means "head", T means "tail" and the first letter refers to the penny)

A. (H,T)

B. (H,H), (T,T)

C. (H,T), (T,H), (H,H)

D. (H,H), (H,T), (T,H), (T,T)

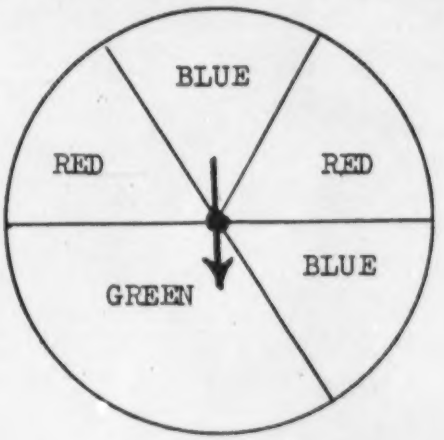
7-17-8 63. The probability of the arrow of the spinner stopping on RED is

A. $\frac{2}{3}$

B. $\frac{2}{4}$

C. $\frac{2}{5}$

D. $\frac{2}{6}$



7-17-10 64. A bottle cork is tossed from a box in the same manner 100 times. It lands on its side 75 times and on one of its ends 25 times. If the cork is tossed once again in the same manner, what is the probability that it will land on one of its ends?

A. $\frac{1}{3}$

B. $\frac{1}{4}$

C. $\frac{3}{4}$

D. none of the above

7-16-1 65. The ordered pair (6, 9) is equal to the ordered pair

A. (-6, -9)

B. $(\frac{18}{2}, 6)$

C. $(\frac{12}{2}, 9)$

D. none of the above

7-16-6 66. Which set of ordered pairs describes completely the relation "is less than" on the set {1, 2, 3, 4} ?

A. {(1,2), (2,3), (3,4)}

B. {(1,2), (1,3), (1,4), (2,3), (2,4), (3,4)}

C. {(2,1), (3,1), (3,2), (4,1), (4,2), (4,3)}

D. {(1,1), (1,2), (2,2), (2,3), (3,3), (3,4), (4,4)}

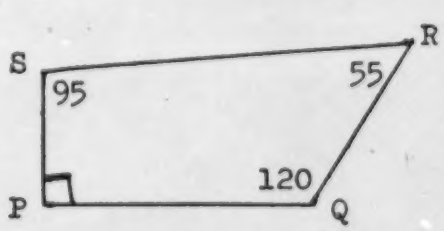
7-7-2 67. Which angle(s) in the figure is(are) called obtuse?

A. $\angle P$

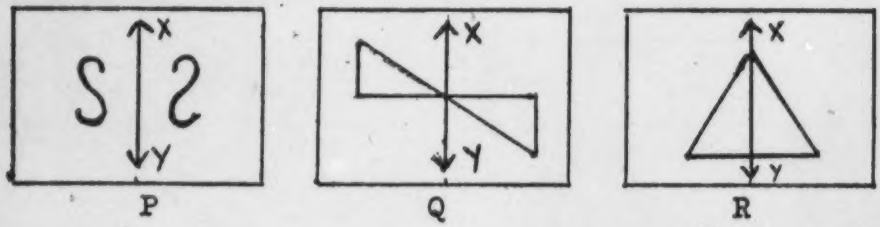
B. $\angle R$

C. $\angle Q$ and $\angle S$

D. $\angle P$, $\angle Q$ and $\angle S$



7-9-1 68. Which of the diagrams illustrate(s) symmetry with respect to the line XY ?

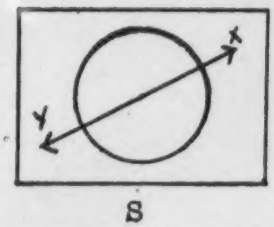


A. only P

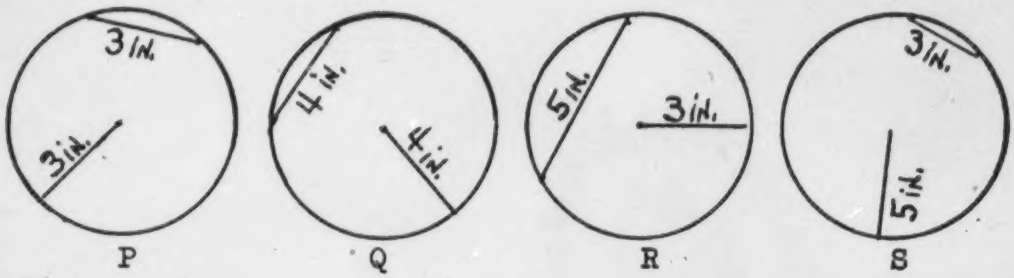
B. P, Q, R and S

C. only P, R and S

D. only P, Q and S



7-10-3 69. Which circles are congruent?



A. P and Q

B. R and S

C. P and R

D. P, Q, R and S

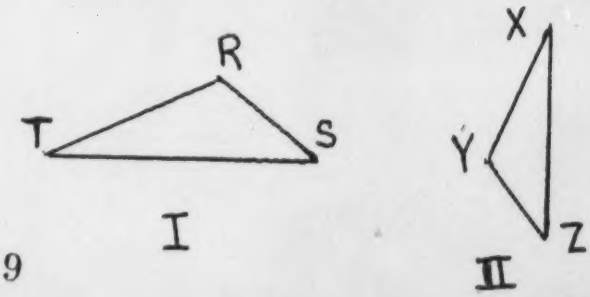
7-11-1 70. If triangle I is <u>similar</u> to triangle II, which of the following identify corresponding parts?

A. $\angle S$ and $\angle Y$

B. $\angle R$ and $\angle Z$

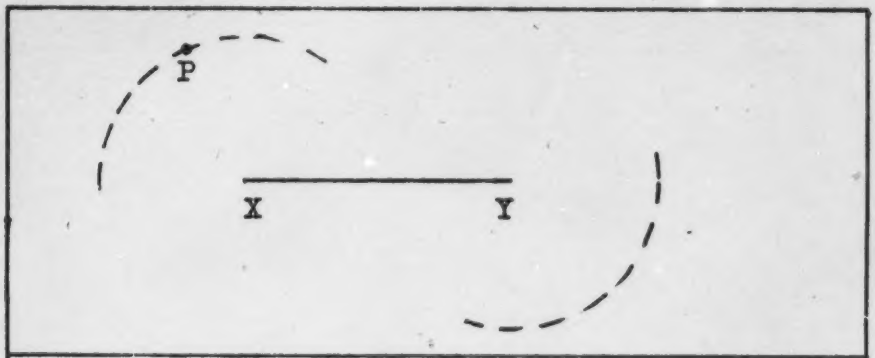
C. $\overline{RS}$ and $\overline{YZ}$

D. $\overline{RT}$ and $\overline{XZ}$

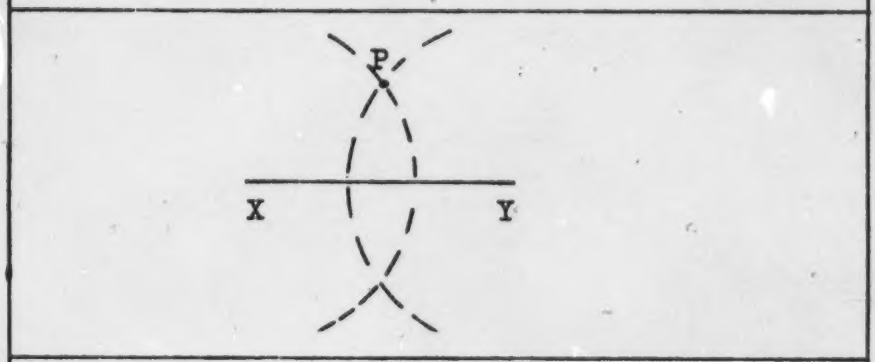


7-13-1 71. You are given $\overline{XY}$ and are asked to construct a rhombus (which is not a square) with sides congruent to $\overline{XY}$. Which of the following represents the best approach for this construction?

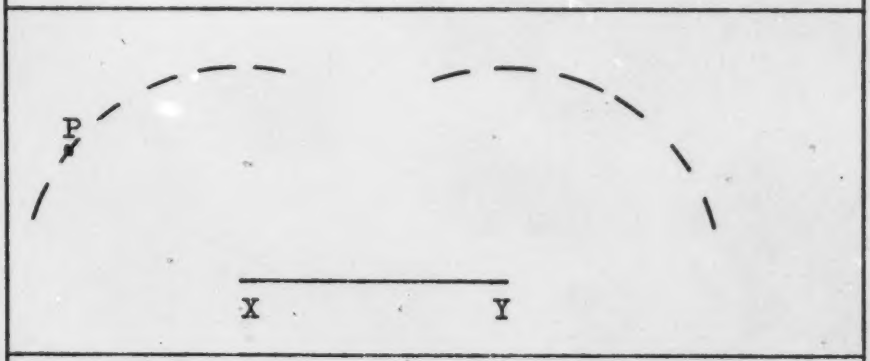
A.



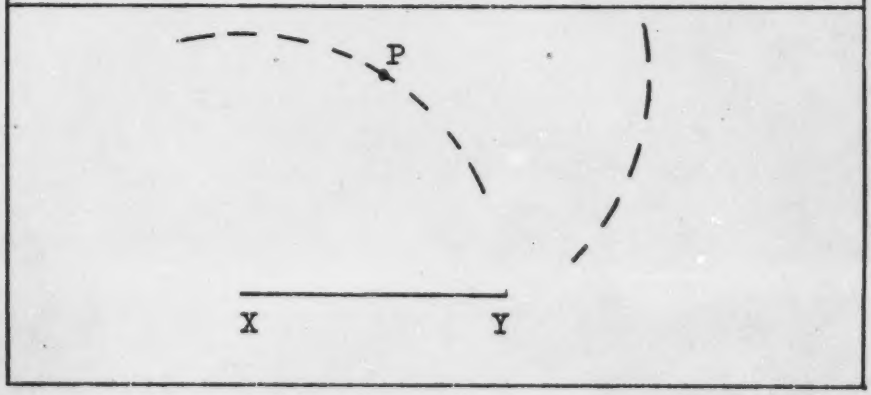
B.



C.



D.



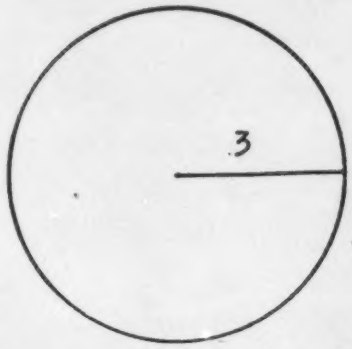
7-14-3 72. The formula for the area of a circle is $A = \pi r^2$. What is the area of the circle shown below? (Assume $\pi = \frac{22}{7}$)

A. $\frac{22}{7}$ x 3 square units

B. $\frac{22}{7}$ x 6 square units

C. $\frac{22}{7}$ x 9 square units

D. $\frac{22}{7}$ x 36 square units



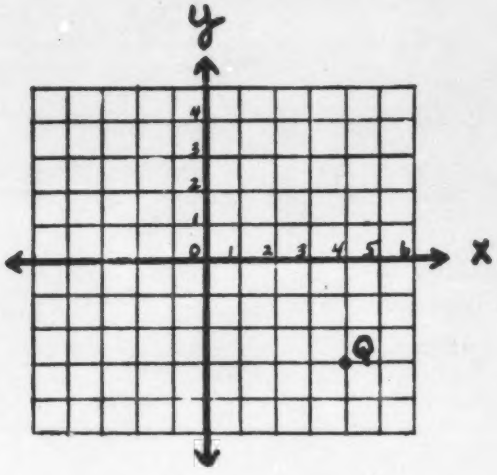
7-16-2 73. The coordinates of point Q

A. (4, -3)

B. (4, 3)

C. (-3, 4)

D. (3, 4)



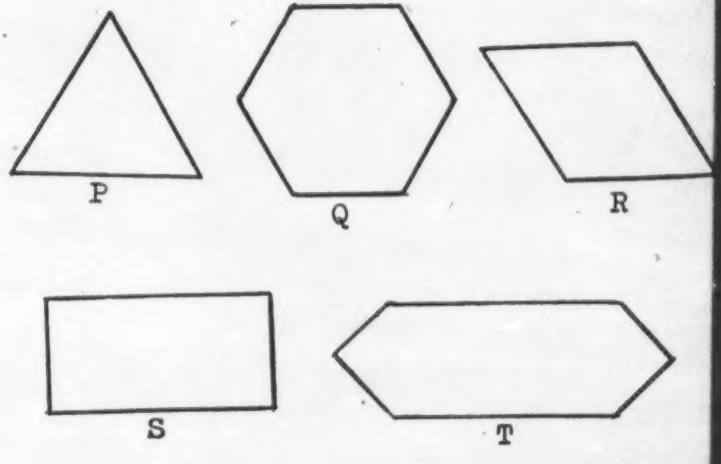
7-7-4 74. Which of the following appear to represent <u>regular</u> polygons?

A. only P

B. only P and Q

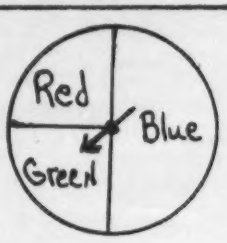
C. only Q and S

D. only P, R and T

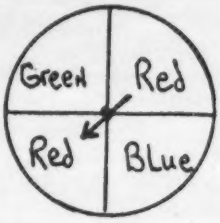


7-17-4 75. Which spinner arrow has <u>equal</u> chances of stopping either on red or on green?

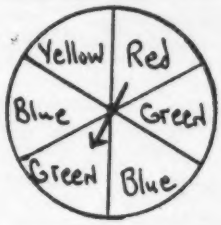
A.



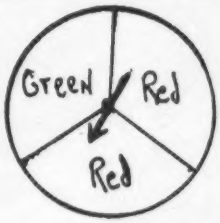
B.



C.



D.



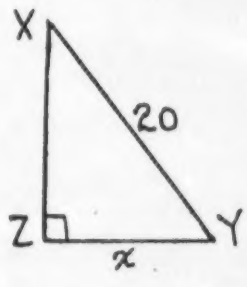
7-11-3 76. If triangle ABC is similar to triangle XYZ, what is the length of $\overline{ZY}$?

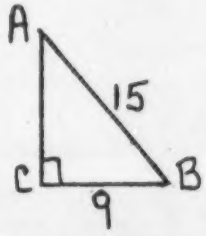
A. 11

B. 12

C. 13

D. 14





7-14-4 77. Find the area of the shaded region between the squares.

A. 6 square units

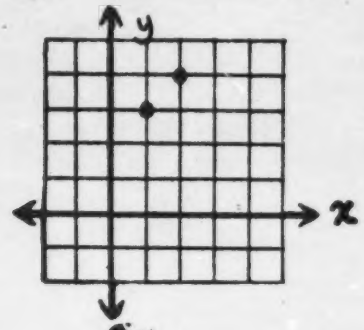
B. 24 square units

C. 25 square units

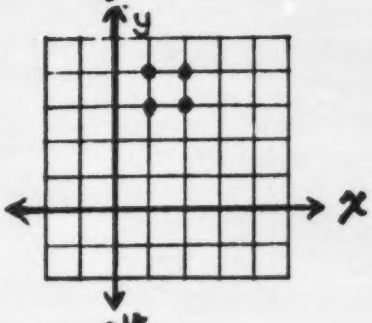
D. 48 square units

7-16-3 78. If X = {1, 2} and Y = {3, 4} the graph of the elements in X⨯Y (X cross Y) is

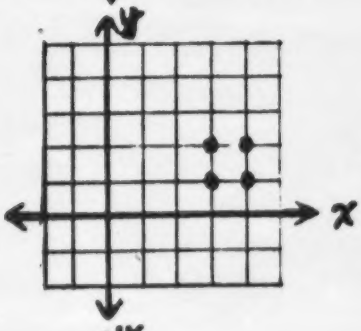
A.



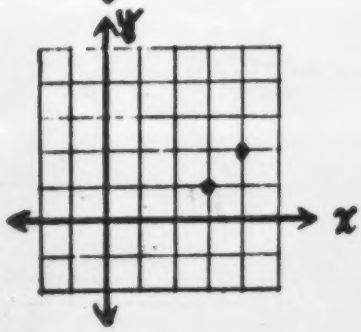
B.



C.



D.



7-17-7 79. The probability of an event happening ranges from

A. 0 through 1

B. 0 through 10

C. 1 through 10

D. $\frac{1}{10}$ through $\frac{9}{10}$

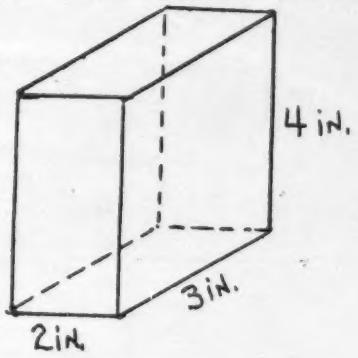
7-14-5 80. What is the <u>surface area</u> of the right rectangular prism?

A. 24 square inches

B. 26 square inches

C. 46 square inches

D. 52 square inches



7-16-3 81. If S = {2, 3} and T = { -1, 5} then S X T (S cross T) is equal to

A. {(-2, 15)}

B. {(2, -1), (3, 5)}

C. {(-1, 2), (-1, 3), (5,2), (5, 3)}

D. {(2, -1), (2, 5), (3, -1), (3, 5)}

7-14-7 82. What is the sum of the measures of the angles of a quadrilateral?

A. 90 degrees

B. 180 degrees

C. 270 degrees

D. 360 degrees

7-16-4 83. If $S = \{ q, r, v \}$ and $T = \{ k, l, m \}$ the number of elements in $S \times T$ (S cross T) is

A. 3

B. 6

C. 9

D. 18

7-14-8 84. What is the greatest possible error when measuring to the nearest one-half inch?

A. $\frac{1}{4}$ inch

B. $\frac{1}{2}$ inch

C. 1 inch

D. none of the above

7-14-9 85. The precision of a measurement is $\frac{1}{8}$ inch. What is the greatest possible error of the measurement?

A. $\frac{1}{16}$ inch

B. $\frac{1}{8}$ inch

C. $\frac{1}{4}$ inch

D. $\frac{1}{2}$ inch

EIGHTH GRADE TEST

DO NOT OPEN THE TEST BOOKLET UNTIL YOUR TEACHER TELLS YOU TO

Fill in your name and other information requested at the top of the answer sheet.

This is a mathematics test. Read each question or problem carefully. Look at the lettered responses. When you have decided which is the correct answer, blacken in the space between the lines on the answer sheet under the letter of that choice. If you change your mind, erase your first answer completely. Look at the example below.

1. 12 - 5 =

   A. 12
   B. 5
   C. 7
   D. 0

1. A. B. C. D. E.

Since 7 is the correct answer, the space under the C in the answer space is blackened.

When your teacher tells you to, open your booklet and begin.

FOR THE TEACHER

Instructions for using machine scorable answer sheets:

1. Read the above information and sample item aloud to the class.
2. Use a soft lead pencil (number 2 or less).
3. Students may use scratch paper. They should not write in the test booklet or make random marks on the answer sheet.
4. Students should answer every item.
5. There is one and only one correct answer for each item.
6. Use the same answer sheet for both parts of the test.
7. There is no time limit on this test.

8-17-5 1. In a canning factory it was observed that out of 200 cans selected at random, 3 cans had defective labels. Based on this information, how many defective labels can be expected in a day's production of 1000 cans ?

A. 6

B. 12

C. 15

D. 18

8-4-1 2. What replacement for n will make the sentence $\frac{3}{4} + n = 0$ true ?

A. $\frac{4}{3}$

B. $-\frac{4}{3}$

C. $-\frac{3}{4}$

D. $\frac{-3}{-4}$

8-6-1 3. Which one of the following is a true statement ?

A. $(-53) + (-17) = +70$

B. $(+45) - (-26) = +19$

C. $(-8) \times (-12) = -96$

D. $(-24) \div (-6) = +4$

8-4-1 4. Which property is illustrated by the sentence $\frac{5}{7} \times \frac{7}{5} = 1$?

A. commutative property of multiplication

B. associative property of multiplication

C. identity property of multiplication

D. inverse property of multiplication

8-15-3 5. Which one of the following sentences is <u>equivalent</u> to the sentence $2x + 3 = 17$?

A. $2x - 3 = -17$

B. $2x = 20$

C. $x + 3 = \frac{17}{2}$

D. $2x = 14$

8-3-1 6. Which of the following is a true statement about the numbers 5 and $\sqrt{10}$?

A. $5 < \sqrt{10}$

B. $5 = \sqrt{10}$

C. $5 > \sqrt{10}$

D. none of the above

8-15-4 7. Which of the following is <u>not</u> a correct procedure for finding the solution set of a sentence ?

A.
$$\begin{aligned} x - 3 &= -11 \\ x - 3 + 3 &= -11 + 3 \\ x &= -8 \end{aligned}$$

B.
$$\begin{aligned} 3y &= 7 \\ \tfrac{1}{3} \cdot 3y &= \tfrac{1}{3} \cdot 7 \\ y &= \tfrac{7}{3} \end{aligned}$$

C.
$$\begin{aligned} 2x &= 8 \\ 2x - 2 &= 8 - 2 \\ x &= 6 \end{aligned}$$

D.
$$\begin{aligned} 2 + 3 &= x + 7 \\ 5 - 7 &= x + 7 - 7 \\ -2 &= x \end{aligned}$$

8-2-2 8. In scientific notation, 0.0257 is expressed as:

A. 2.57×10^{2}

B. 2.57×10^{-2}

C. 25.7×10^{3}

D. 25.7×10^{-3}

8-2-3 9. If $6 = n \times n$, then n is equal to:

A. 3

B. 2×3

C. $\sqrt{6}$

D. $\sqrt{36}$

8-17-3 10. Suppose you have a mixture of 6 black jellybeans and 5 red jellybeans. The probability of picking a red jellybean without looking is $\frac{5}{11}$. One red jellybean is selected and eaten. What is the probability that a second jellybean picked without looking will be red ?

A. $\frac{5}{11}$

B. $\frac{4}{11}$

C. $\frac{5}{10}$

D. $\frac{4}{10}$

8-6-4 11. The mean (average) of 3.4, -5.58, and 0.98 is:

A. 0.4

B. -1.42

C. 3.32

D. none of the above

8-4-1 12. $-\frac{2}{3} \times \left(\frac{1}{2} + \frac{3}{4}\right)$ is equal to:

A. $\left(-\frac{2}{3} \times \frac{1}{2}\right) + \frac{3}{4}$

B. $\frac{1}{2} \times \left(-\frac{2}{3} + \frac{3}{4}\right)$

C. $\left(-\frac{2}{3} \times \frac{1}{2}\right) + \left(-\frac{2}{3} \times \frac{3}{4}\right)$

D. $\left(-\frac{2}{3} + \frac{1}{2}\right) \times \left(-\frac{2}{3} + \frac{3}{4}\right)$

8-6-5 13. $(5 \times 10^2) \times (2.3 \times 10^3)$ is equal to:

A. 7.3×10^5

B. 11.5×10^5

C. 11.5×10^6

D. $(5 \times 20) \times (2.3 \times 30)$

8-4-3 14. The sentence $(-3) - (+4) = n$ can also be written as:

A. $(-3) + (+4) = n$

B. $(-3) + (-4) = n$

C. $(+3) + (+4) = n$

D. $(+3) + (-4) = n$

8-15-1 15. The solution for the sentence $2y - 17 = -33$ is:

A. between -30 and -15

B. between -15 and 0

C. between 0 and +15

D. between +15 and +30

8-1-2 16. Which of the following decimals represents an irrational number ?

A. 0.25

B. $0.25\overline{25}$

C. 0.25000. . .

D. 0.2525525552. . .

8-4-2 17. Which of the following sentences is <u>false</u> ?

A. $(-2) \times (-3) = -6$

B. $(-2) \times (+3) = -6$

C. $(-2) \times (-1) \times (-3) = -6$

D. $(-2) \times (+1) \times (-3) = +6$

8-17-4 18. In the last twelve times at bat a baseball player got four hits and struck out eight times. Based on this information, what is the probability that he will get a hit the next time at bat?

A. $\frac{4}{8}$

B. $\frac{4}{12}$

C. $\frac{8}{12}$

D. $\frac{5}{13}$

8-6-2 19. $\sqrt{50}$ is equal to:

A. 25

B. between 6.9 and 7.5

C. between 7.5 and 7.9

D. none of the above

8-1-1 20. The repeating decimal $0.6\overline{6}$ is <u>equal</u> to:

A. 0.667

B. $\frac{2}{3}$

C. 0.666

D. $\frac{66}{100}$

8-17-1 21. How many different arrangements are there for seating three people in a row of three chairs?

A. 3

B. 6

C. 9

D. 27

8-2-4 22. In expanded notation, 23.05 can be written as:

A. $(2 \times 10^2) + (3 \times 10^1) + (5 \times 10^0)$

B. $(2 \times 10^1) + (3 \times 10^0) + (5 \times 10^{-1})$

C. $(2 \times 10^2) + (3 \times 10^1) + (0 \times 10^{-1}) + (5 \times 10^{-2})$

D. $(2 \times 10^1) + (3 \times 10^0) + (0 \times 10^{-1}) + (5 \times 10^{-2})$

8-6-1 23. $-0.033 + 0.27$ is equal to:

A. + 0.060

B. + 0.237

C. - 0.237

D. + 0.303

8-16-1 24. **Which set of ordered pairs represents the relation described by "double the number and subtract one ?"**

A. { (3,7), (2,5), (1,3), (0,1) }

B. { (-3,-7), (-2,-5), (-1,-3), (0,-1) }

C. { (3,5), (2,3), (1,0), (0,1) }

D. { (-3,5), (-2,3), (-1,1), (0,-1) }

8-17-2 25. **If you flip two coins, the probability of getting two heads is**

A. $\frac{1}{2}$

B. $\frac{1}{3}$

C. $\frac{1}{4}$

D. none of the above

8-6-1 26. $(0.06 \times 0.33) \div \frac{2}{3}$ is equal to:

A. 0.0132

B. 0.0297

C. 1.32

D. 2.97

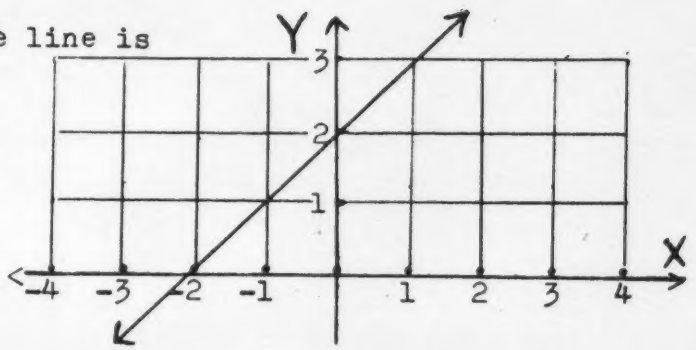
8-16-3 27. The equation of the line is

A. $y - x = 2$

B. $y = x - 2$

C. $x - y = 2$

D. $x + y = 2$



8-16-2 28. **Which relation is a function?**

A. { (2,3), (3,4), (2,4), (3,5) }

B. { (3,2), (4,3), (3,4), (4,2) }

C. { (1,1), (1,2), (1,3), (1,4) }

D. { (1,1), (2,1), (3,1), (4,1) }

8-1-3 29. **The number of subsets that can be formed from the set** { ○, □, △ } **is**

A. three subsets

B. six subsets

C. seven subsets

D. eight subsets

8-2-1 30. $(3)^0$ **is equal to:**

A. 0

B. $\frac{1}{3}$

C. 1

D. 3

8-6-6 31. 30 + 6 - 24 ÷ 4 x 3 **is equal to:**

A. 9

B. 18

C. 34

D. none of the above

8-2-1 32. 7^{-2} can be expressed as:

A. $\frac{1}{7^2}$

B. $\frac{1}{7 \times (-2)}$

C. $-(7^2)$

D. $7 \times (-2)$

8-6-3 33. $0.\overline{27}$ is equal to:

A. $\frac{3}{11}$

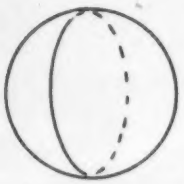
B. $\frac{28}{99}$

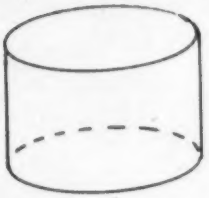
C. $\frac{2727}{10000}$

D. none of the above

EIGHTH GRADE TEST PART II

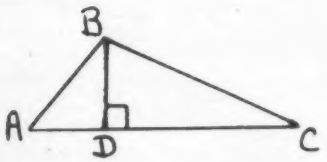
8-7-1 34. Which one of the following represents a circular cylinder ?

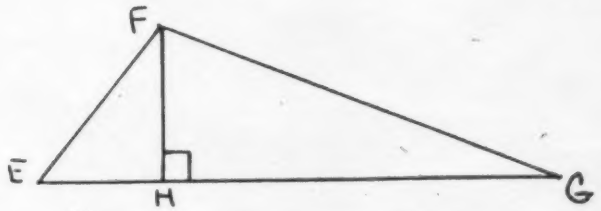
A. 

B. 

C.

D.

8-11-1 35. 



If triangle ABC is <u>similar</u> to triangle EFG , which one of the following proportions is true ?

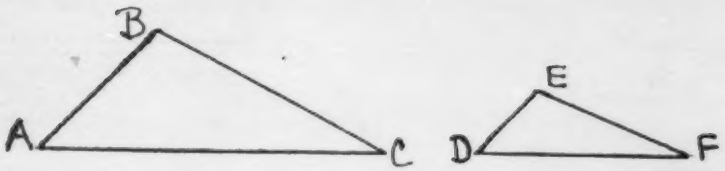
A. $\frac{AB}{EF} = \frac{EF}{BC}$

B. $\frac{AB}{EF} = \frac{BD}{FH}$

C. $\frac{AD}{DB} = \frac{FH}{HG}$

D. $\frac{AC}{EF} = \frac{FG}{AB}$

8-11-4 36.



If triangle ABC is <u>similar</u> to triangle DEF, which statement is true ?

A. $\frac{AB}{AC} = \frac{DE}{EF}$

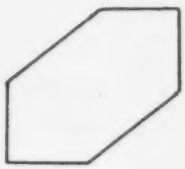
B. $\frac{AB}{AC} = \frac{EF}{FD}$

C. $\frac{AB}{AC} = \frac{DE}{DF}$

D. none of the above

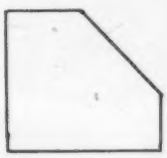
8-7-2 37. Which one of the following is <u>not</u> a convex polygon ?

A.



B.

C.

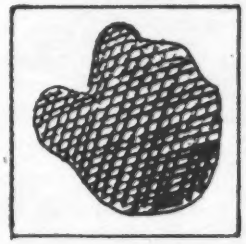


D.

8-14-5 38. Which one of the following is a true relationship between units of the metric system of measurement ?

A. 1 millimeter = 100 centimeters = 1000 meters
B. 1 meter = 10 centimeters = 100 millimeters
C. 1 meter = 100 centimeters = 1000 millimeters
D. 1 kilometer = 100 centimeters = 1000 meters

8-14-9 39. If you want to estimate the area of the shaded region as closely as possible, you would divide the square region into



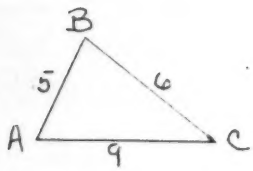
A. 16 equal square regions

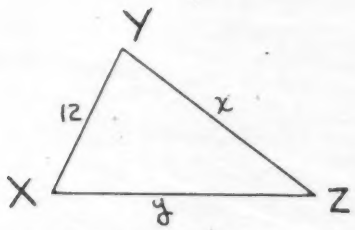
B. 25 equal sguare regions

C. 49 equal square regions

D. 100 equal square regions

8-5-1 40.





Triangle ABC is similar to triangle XYZ. Which proportion could be used to find the length of side XZ ?

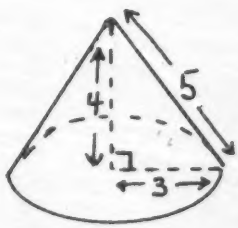
A. $\frac{5}{12} = \frac{9}{y}$

B. $\frac{12}{5} = \frac{9}{y}$

C. $\frac{6}{12} = \frac{y}{9}$

D. $\frac{12}{6} = \frac{y}{9}$

8-14-1 41. The formula for the volume of a cone is $\frac{1}{3}\pi r^2 h$. Using $\frac{22}{7}$ as an approximate value of π, the volume of the cone at the right is:



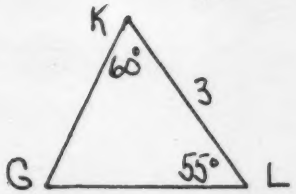
A. $\frac{88}{7}$ cubic units

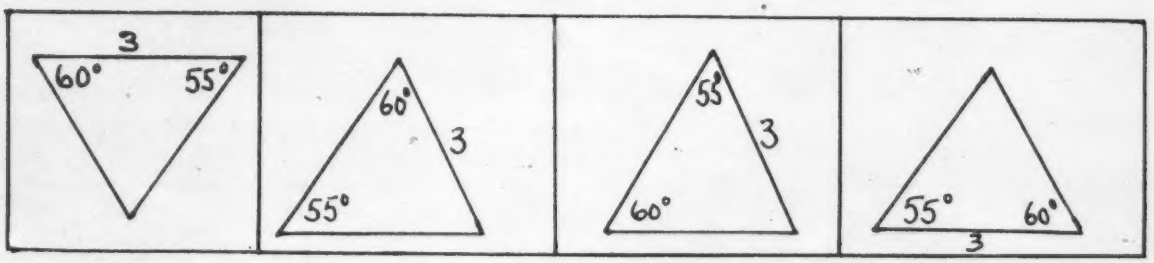
B. $\frac{110}{7}$ cubic units

C. $\frac{264}{7}$ cubic units

D. $\frac{330}{7}$ cubic units

8-10-2 42. Which of the following triangles must be congruent to triangle GKL ?





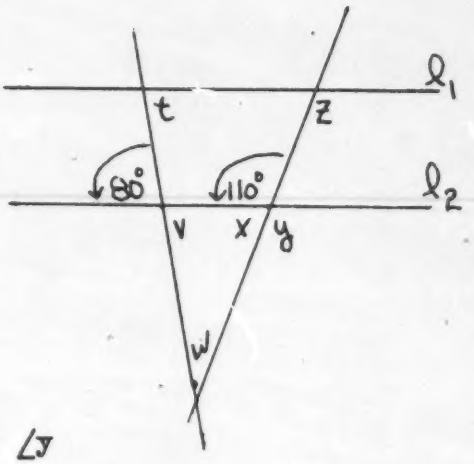
A. only P

B. only Q

C. only Q and R

D. only P and S

8-8-3 43. In the figure at the right, ℓ_1 is parallel to ℓ_2. Which one of the following statements is false ?



A. measure of $\angle t$ = 80°

B. measure of $\angle z$ = measure of $\angle y$

C. measure of $\angle x$ = measure of $\angle t$

D. measure of $\angle v$ + measure of $\angle w$ = measure of $\angle y$

8-11-3 44. If the sides of triangle XYZ are proportional to the corresponding sides of triangle DEF, what can you conclude?

A. Triangle XYZ must be similar to triangle DEF.

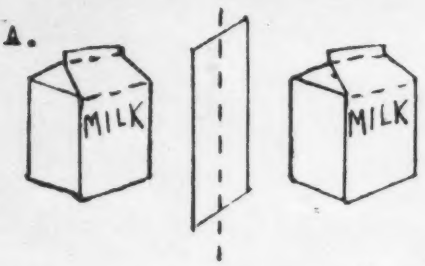
B. Triangle XYZ must be congruent to triangle DEF.

C. The triangles must have the same area.

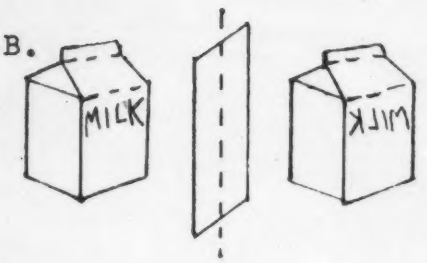
D. The perimeters of the triangles must have the same measure.

8-9-1 45. Which one of the following represents symmetry with respect to a plane ?

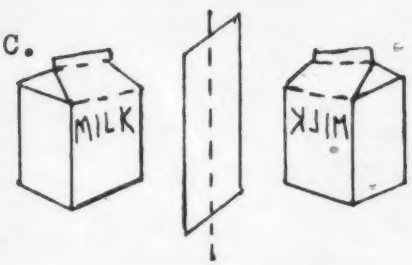
A.



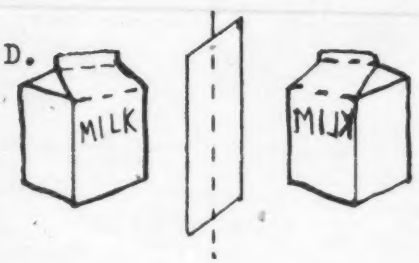
B.



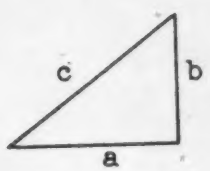
C.



D.



8-14-7 46. The measure of the hypotenuse of a right triangle is 10 and the measure of one of the sides is 8. What is the measure of the third side ?



$a^2 + b^2 = c^2$

A. 6

B. 9

C. 18

D. none of the above

8-11-2 47. If the angles of triangle XYZ are congruent to the corresponding angles of triangle DEF, what can you conclude ?

A. Triangle XYZ must be similar to triangle DEF.

B. Triangle XYZ must be congruent to triangle DEF.

C. The triangles must have the same area.

D. The perimeters of the triangles must have the same measure.

8-13-2 48. Given the <u>three</u> <u>angles</u> of a triangle how many different <u>non-congruent</u> triangles could be constructed ?

A. none

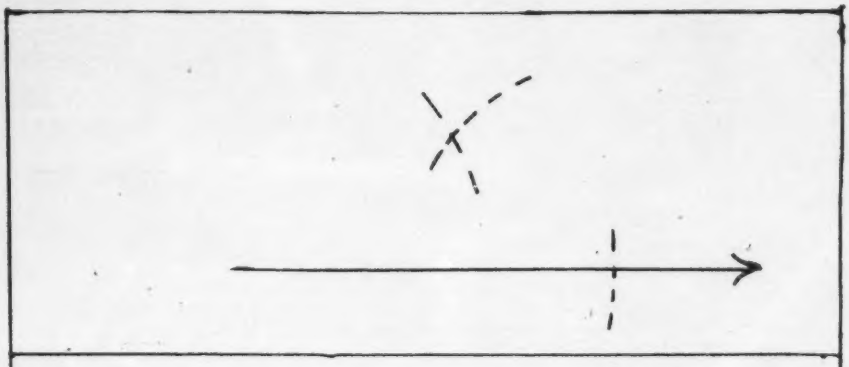
B. exactly one

C. exactly two

D. more than two

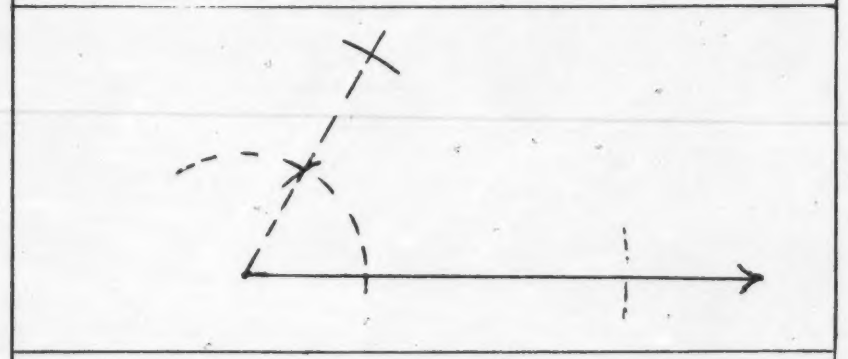
8-13-1 49. Given <u>two</u> <u>sides</u> and the <u>included</u> <u>angle</u> of a triangle which one of the following represents the correct approach to the <u>construction</u> of the triangle?

A.

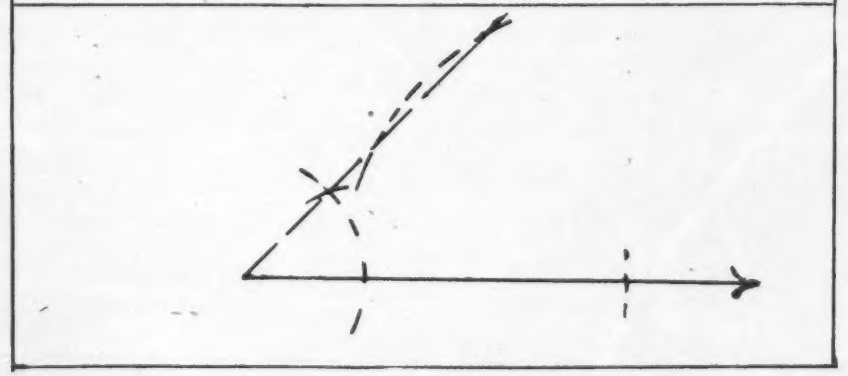


B.

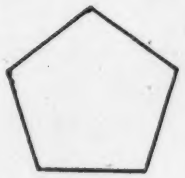
C.



D.



8-14-3 50. What is the sum of the measures of the angles of a regular pentagon ?



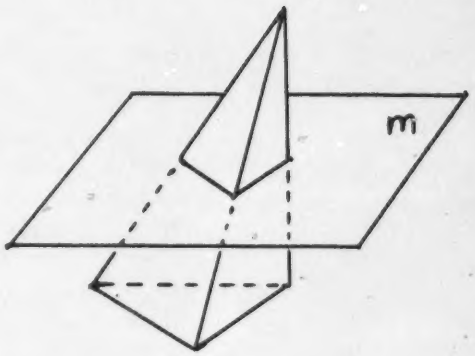
A. 900

B. 720

C. 540

D. 360

8-8-2 51. Which one of the following best describes the <u>intersection</u> of the plane m and the pyramid?



A. an angle

B. a plane

C. a pyramid

D. a triangle

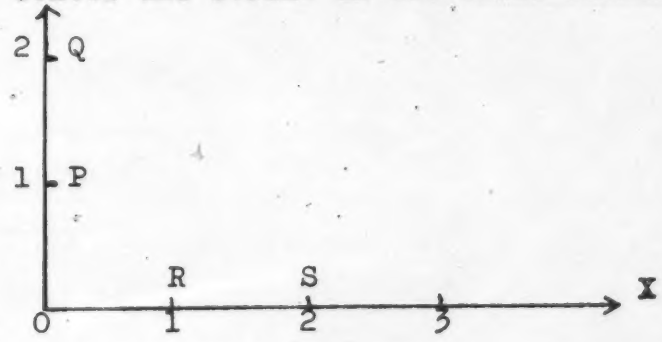
8-13-3 52. To locate the point on the x-axis whose coordinate is $\sqrt{2}$, use the origin as center and strike an arc whose radius is

A. PR

B. PS

C. QR

D. QS



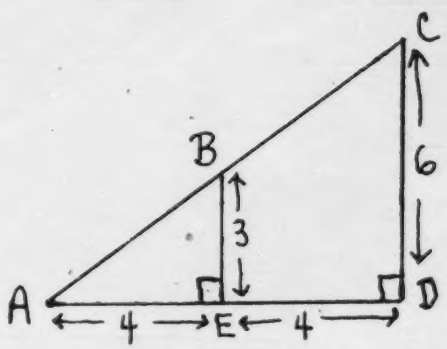
8-11-5 53. Which statement is true?

A. tan ∠BAE < tan ∠CAD

B. tan ∠BAE > tan ∠CAD

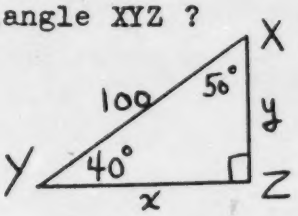
C. tan ∠BAE = tan ∠CAD

D. none of the above is true



8-14-8 54. What is the length of side y in triangle XYZ ?

	Sin	Cos	Tan
40°	.643	.766	.839
50°	.766	.643	1.192



$\text{Sin} = \frac{\text{opposite}}{\text{hypotenuse}}$ $\text{Cos} = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\text{Tan} = \frac{\text{opposite}}{\text{adjacent}}$

A. 119.3

B. 83.9

C. 76.6

D. 64.3

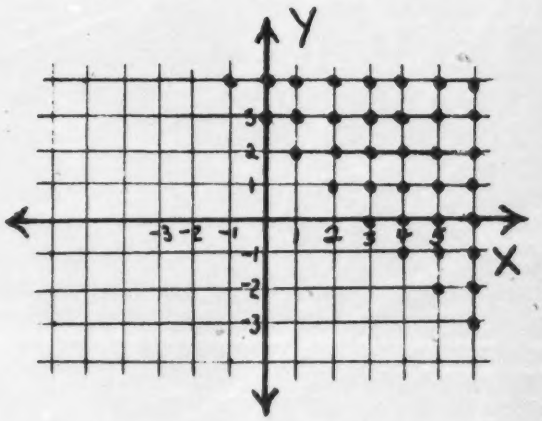
8-15-2 55. The graph at the right represents the solution set of the sentence:

A. $x = 2 - y$

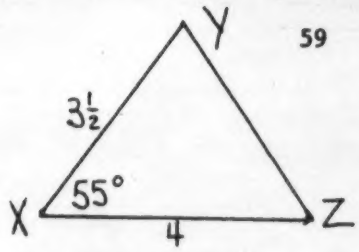
B. $x \neq 2 - y$

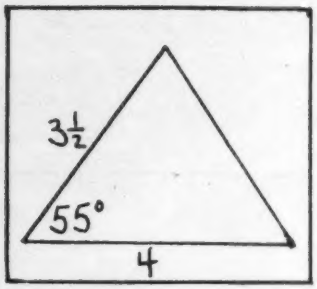
C. $x < 2 - y$

D. $x > 2 - y$

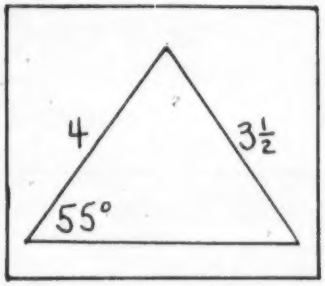


8-10-1 56. Which of the following triangles must be congruent to triangle XYZ ?

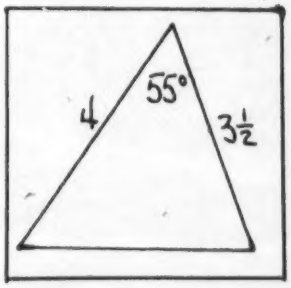




P



Q



R

A. only P

B. only P and R

C. only P and Q

D. P, Q, and R

8-10-3 57. Under which one of the following conditions must two triangles be congruent ?

A. Each triangle is equilateral.
B. Corresponding angles are congruent.
C. Corresponding sides are congruent.
D. Corresponding sides are proportional.

8-8-1 58. The intersection of a circle and a _____ contains exactly one point ?

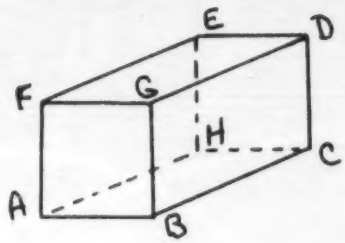
A. chord

B. diameter

C. secant

D. tangent

8-8-1 59. Which one of the following pairs of segments are subsets of two skew lines ?



A. $\overline{FA}$ and $\overline{DC}$

B. $\overline{FA}$ and $\overline{BA}$

C. $\overline{FA}$ and $\overline{BC}$

D. $\overline{FA}$ and $\overline{GB}$

8-14-6 60. The approximate populations for four different school systems are 7200 students (to the nearest 100 students), 1420 students (to the nearest 10 students), 1060 students (to the nearest 10 students), and 136 students. What is the approximate total enrollment of the four schools expressed to the correct precision ?

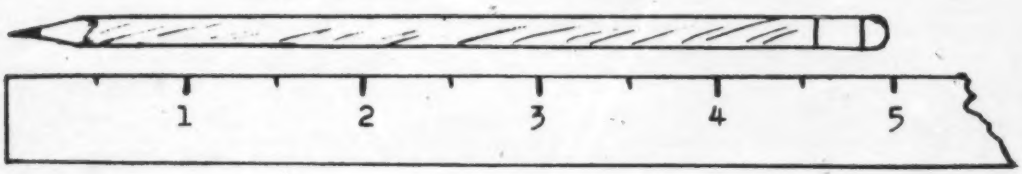
A. 10,000 students

B. 9,816 students

C. 9,800 students

D. 99,700 students

8-14-2 61. If a pencil is measured to the nearest one-half inch, what is the relative error of the measure?



$$\left(\text{relative error} = \frac{\text{greatest possible error}}{\text{measurement of object}}\right)$$

A. 0.05

B. 0.25

C. 0.5

D. none of the above

8-14-4 62. **Which one of the following is a true relationship between units of <u>angular</u> <u>measure</u> ?**

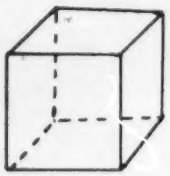
A. 1 degree = 3600 seconds

B. 1 degree = 360 minutes

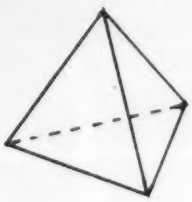
C. 1 degree = 180 minutes

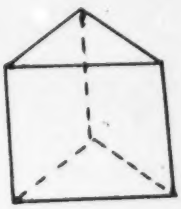
D. 1 degree = 60 seconds

8-7-3 63. **Which of the following appear to be <u>regular</u> solids ?**

P. 

R.

Q. 

S. 

A. only P

B. only P and Q

C. only P, Q, and S

D. P, Q, R, and S

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